

Michigan Clean Diesel Initiative

Funding Workshop

Tuesday, March 25, 2008



**Emission
Solutions**

Welcome!

- Chairs

- Lisa Goldstein, Southwest Detroit Environmental Vision
- Judy Murphy, Cummins Emission Solutions

- Planning Committee

- Attendees

MI Clean Diesel Initiative

Group Objectives

The coalition will be to establish a dialogue among members that will help Michigan achieve improvements in the federal air quality standards by:

- Working with specific geographic areas and industry sectors of Michigan to identify where environmental improvements can be made through diesel emission reductions [**Identify Opportunities**];
- Developing a list of technologies that can be used by these industry sectors [**Develop Solutions**]; and
- Acting as a conduit to help identify funding opportunities and resources that can be used to implement diesel reduction technologies and strategies [**Facilitate Improvement**].

Objective: Identify Opportunities

Tasks:

- Communicate current status and identify geographic areas to focus improvement activities
- Identify major emissions sources in the focus locations
 - Specific Industry sectors

Objective: Develop Solutions

Tasks:

- Create List and Educate members on:
 - Industry Specific emissions reduction technology
 - Reasons (Business Case) for emissions reduction
 - Ways to Drive initiatives on a local level
- Brainstorm Innovative Program options

Objective: Facilitate Improvement

Tasks:

- Identify and Communicate funding sources
- Provide Resources for application process

Today's Meeting

- Goal: Communicate RFP and funding Information
- National Clean Diesel Initiative
- Regional RFP details
- State Program
- Grant Application Case study
- Group Discussion
- Adjourn

Ground Rules

■ PARTICIPATE!

- All input is valuable
- There are no “stupid questions”
- Please let a chairperson or committee member know if you’d like to become more involved

■ Facility

- Restrooms
- Emergency Exits
- Cell phones



Michigan Clean Diesel Initiative Meeting

March 25, 2008

Why Clean Diesel?

- Diesel engines are the workhorses of the nation; millions of diesel engines already in use continue to emit large amounts of nitrogen oxides, particulate matter and air toxics
- These emissions are linked to premature deaths, asthma attacks, lost work days, and other health impacts every year

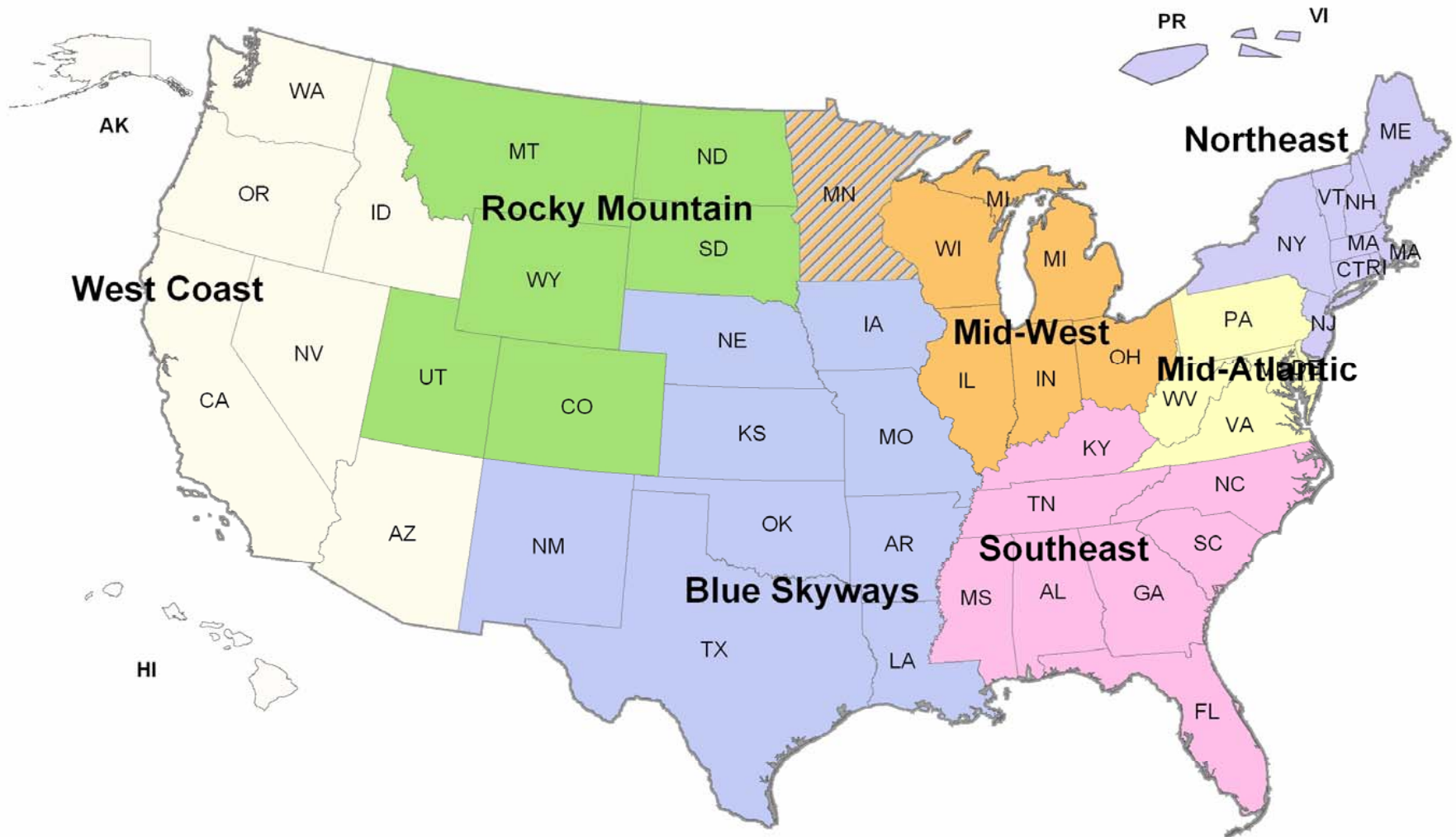
USEPA Regulatory Programs

- Clean Diesel Truck/Bus Rule (Dec 2000)
 - Ultra low sulfur diesel – Oct 2006
 - Model year 2007 engines
- Clean Air Non-road Diesel Rule (May 2004)
 - 2007 – 500 ppm, 2010 – 15 ppm
 - Phased in engine standards - 2008-2014
- Locomotive and Marine Rule (March 2008)
- **But what can be done with the 11 million engines in use today?**

National Clean Diesel Campaign

- Goal: *reduce emissions from the legacy fleet of over 11 million diesel engines by 2014*
- Focus on five sectors:
 - Clean School Bus
 - Clean Ports
 - Clean Construction
 - Clean Agriculture
 - Smartway Transport
- <http://www.epa.gov/cleandiesel/>

Regional Clean Diesel Collaboratives





- Public-private partnership to accelerate diesel emission reductions in the Midwest
- Region 5 diesel engines
 - Approximately 3.3 million
- MCDI Goal:
 - reduce emissions from 1 million diesel-powered engines by 2010
- <http://www.epa.gov/midwestcleandiesel>

The logo for the Midwest Clean Diesel Initiative features a stylized blue wave graphic that curves over the text. The words "MIDWEST CLEAN DIESEL" are in a bold, dark blue, sans-serif font. Below this, the word "INITIATIVE" is written in a green, sans-serif font, with each letter separated by a small gap.

MIDWEST CLEAN DIESEL INITIATIVE

- MCDI Formally Started in 2004
- Leadership Group
 - 33 Members Signed Collaborative Principles
 - Co-Chairs: Cummins, Illinois EPA, American Lung Association of Upper Midwest, US EPA
- Progress (As of March 2008)
 - Over 372,000 Engines Impacted
 - Over \$86 Million (Federal and Non Federal) Spent
 - Tens of millions allocated and in process of being spent
 - Over 4,000 tons of emissions per year reduced
 - 179 Smartway Partners, 25% of national partners
 - Working to build clean diesel coalitions in each state to generate funding sources and implement projects

State Coalitions

- Illinois - IL EPA/Respiratory Health Ass. of Metro Chicago
- Indiana – IDEM/South Shore Clean Cities
- Michigan – MDEQ/Cummins/Southwest Detroit Environmental Vision
- Minnesota – MPCA/MEI/Flint Hills Resources
- Ohio – Ohio EPA, Cleveland Partnership
- Wisconsin – WDNR/Cummins

USEPA Funding

- FY 2003-2006
 - \$25 million for Clean School Bus USA
 - \$6.1 million for non – Clean School Bus USA projects
- FY07 Clean School Bus USA
 - \$7M nationally divided equally to the Regions
 - \$700,000 to Midwest Clean Diesel Initiative
- FY07 National Clean Diesel Campaign
 - \$1.5M nationally divided among Regions
 - \$230,000 to Midwest Clean Diesel Initiative
- FY08 National Clean Diesel Campaign
 - \$49.2M Nationally
 - Over \$6M to be provided in Region 5
- FY09 President Budget Request \$49M

The 5 Rs + Operational Strategies

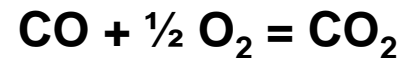
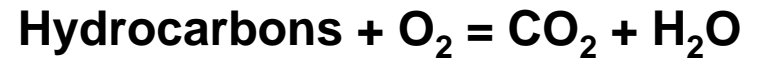
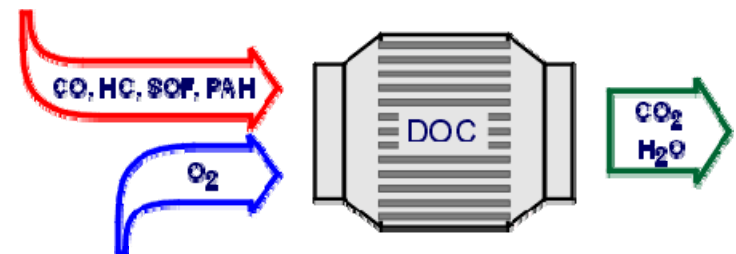
- **Refuel** - Use of advanced diesel fuels, i.e. ULSD can lower emissions
- **Retrofit** - Installation of exhaust aftertreatment devices such as Diesel Oxidation Catalyst (DOC), Diesel particulate filters (DPF), etc
- **Repair/Rebuild** - regular engine maintenance plays a critical role in maintaining emissions performance while engine rebuilding can upgrade emissions performance of older engines.
- **Repower** – replacing older engines with newer cleaner engines
- **Replace** - replacing the entire equipment to ensure that your new purchase utilizes the most cost effective emission reduction technology
- **Operational Strategies** - utilizing various strategies to reduce idling

Technology Overview

- Aftermarket Diesel Emission Reduction Technologies
- Retrofit Technologies and Idle Reduction Technologies
 - This section provides a description of common retrofit technologies. EPA and CARB maintain lists of technologies that they have verified to reduce diesel emissions.
 - EPA-verified technologies are listed at:
<http://www.epa.gov/otaq/retrofit/retroverifiedlist.htm>
 - CARB-verified technologies are listed at:
<http://www.arb.ca.gov/diesel/verdev/verifiedtechnologies/cvt.htm>

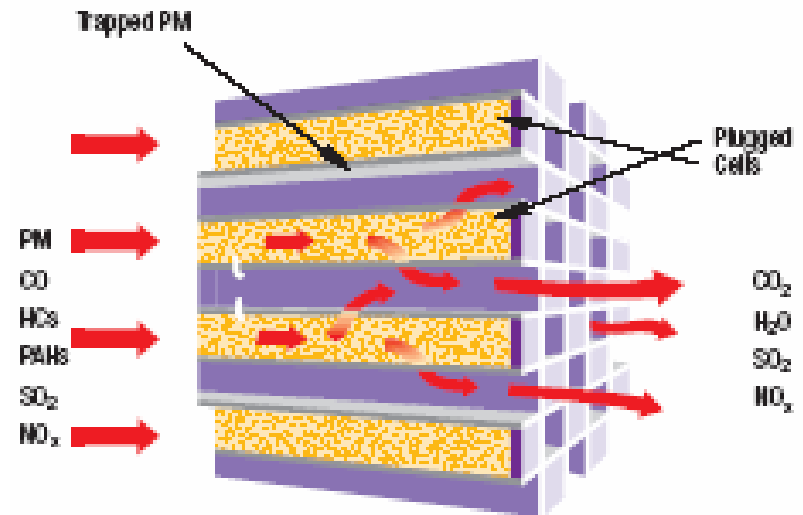
Diesel Oxidation Catalyst (DOC)

- What is it?
 - Device that oxidize pollutants in the exhaust stream and can be packaged with mufflers
- What does it do?
 - Reduces PM (10-50%), HC 50%, CO 40%
- Cost: \$500 - \$2,000
- Issues:
 - Most widely used technology
 - No maintenance required
 - Lower PM reductions than DPF
 - Applicable to most engines and vehicles
 - Verified for dockside and construction equipment



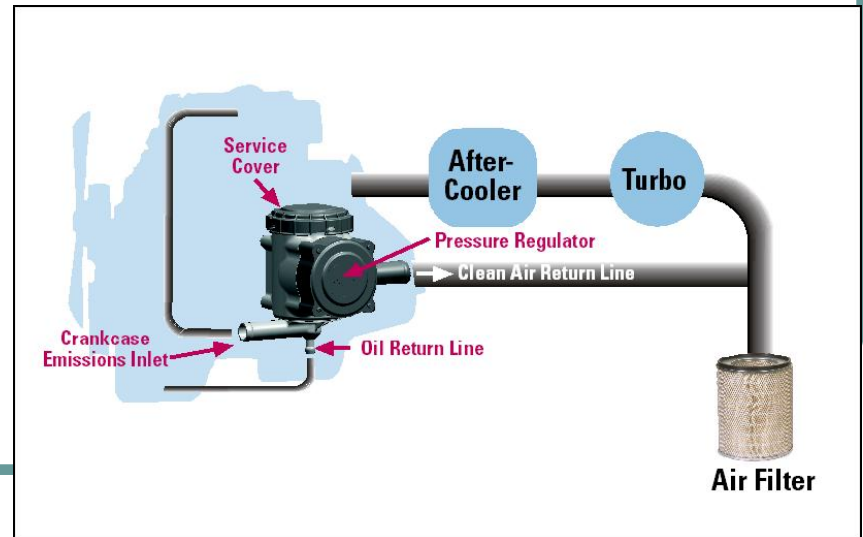
Diesel Particulate Filter (DPF)

- What is it?
 - Honeycomb or mesh devices placed within exhaust stream that physically trap and oxidize PM
- What does it do?
 - Reduces PM, HC, CO (+85%)
- Cost: \$5,000 - \$10,000
- Issues:
 - Must be used with ULSD
 - Passive filters require higher operating temp. ($>250\text{ C}$)
 - Periodic removal of unregenerated ash



Closed Crankcase Ventilation (CCV)

- What is it?
 - System that directs crankcase “blow-by” emissions to intake system for re-combustion. PM collected in filter.
- What does it do?
 - Reduces PM (10%), HC, CO
- Cost: \$700
- Issues:
 - Can be paired w/ DOC for greater reductions



Automatic Shut-Down/Start-Up Systems

- What is it?
 - Automatic engine control microprocessor
- What does it do?
 - Starts and stops engine based on ambient temp, engine oil temp, battery voltage, or timer
- Cost: \$1,000-\$2,000
- Issues:
 - Drivers dislike having engine turn on and off while sleeping



Direct Fired Heaters*

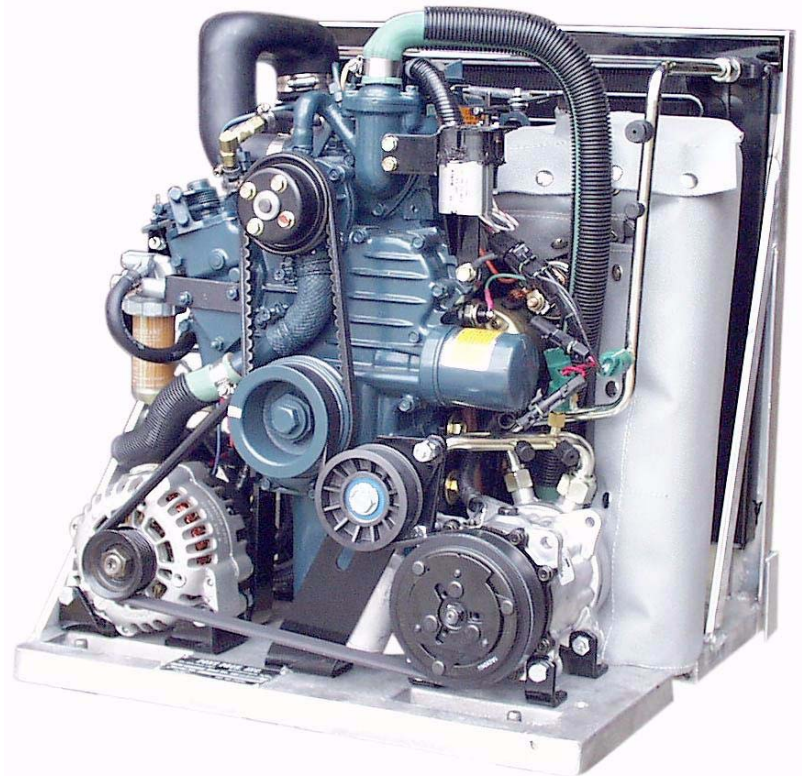
- What is it?
 - Small combustion flame to supply heat through a heat exchanger
- What does it do?
 - Heats cab and/or engine
- Cost: \$1,000-\$2,000
- Issues:
 - No AC; no electrical power



*Also called diesel-driven heaters

Auxiliary Power Units

- What is it?
 - Small diesel powered combustion engine, ~10 hp, EPA certified non-road engines
- What does it do?
 - AC, heat and power for auxiliaries
- Cost: \$5,000-\$7,000
- Issues:
 - Weight*, maintenance, extra tax, costly



*Weight exemption language for APUs is included in the energy bill.

Other Technologies

- **Retrofit Technologies**

- Selective Catalyst Reduction (SCR)
- Lean NOx Catalyst (LNC)
- Exhaust Gas Recirculation (EGR)

- **Idle Reduction Technologies**

- Energy Recovery Systems
- Truck Stop Electrification





DANGER
240 VOLTS

Useful Tools

- Diesel Emissions Quantifier (DEQ)
 - Web tool to estimate diesel emissions reduction projects
 - <http://cfpub.epa.gov/quantifier/>

Diesel Emissions Quantifier

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All EPA



This Area

You are here: [EPA Home](#) » [Transportation and Air Quality](#) » [The Quantifier](#)

Enter Fleet Information

On this page you enter new vehicle group information, then scroll down further to apply a technology to a new vehicle group. At the very bottom, you can save different sets of vehicles and applied technologies before you submit information.

This includes the types of vehicles in the fleet, the number, model year, and retrofit year of each vehicle group; fuel and usage information; the type of technology applied; and cost information. Depending on the type selected, on-highway or nonroad, other fields will appear specific to the type selected.

For more information and explanations of the inputs, refer to the User Guide, [2.2 Fleet Information](#). For information on adding multiple vehicle groups/technologies refer to the User Guide, [2.2.3 Save a New Vehicle Group and Technology](#). A list of all dropdown menus is in [Appendix A](#).

[Go back to Start](#) | [Jump to Current Vehicle Group Listing](#) | You are not currently logged in. [Log in](#)

Enter New Vehicle Group Information

Enter or edit information about this Vehicle Group.

Selected State:

IL

Select type:

(Please Select) ▼

Select sector:



Vehicle or Equipment:



Quantity:

Model Year:



Retrofit Year:



Select fuel type:

(Please Select)



[Complete Quantifier User's Guide \(HTML\)](#)

The Diesel Emission Quantifier should not be used for the calculation of any emission reductions to be incorporated in a State Implementation Plan (SIP) or conformity determination, and certain other technical applications. Please do not continue using the Quantifier until you have read the [important usage information](#).

[Complete Quantifier User's Guide](#) (PDF, 42 pages, 152K, [About PDF](#))

Vehicle Group Actions

If you want to add a technology this group, proceed to enter technology information; if not, click on "Save". Use the "Save and Add Another" button any time a new vehicle group is required.

Apply a Technology to New Vehicle Group

Enter or edit information about the Emissions Reduction Technology.

Select technology type:

Select technology:

| Pollutants: | NOx | | PM | | HC | | CO | | CO2 | |
|-------------|----------------------|---|----------------------|---|----------------------|---|----------------------|---|----------------------|---|
| Reduction: | <input type="text"/> | % | <input type="text"/> | % | <input type="text"/> | % | <input type="text"/> | % | <input type="text"/> | % |

Unit cost:

\$

Installation cost:

\$

Note that the percent reduction associated with a particular retrofit technology or cleaner fuel may vary by manufacturer and application and may change as more information becomes available. Please refer to EPA's [verified technology web page](#) for the latest detailed information on verified emission reductions from retrofit technologies. Some of the technologies listed here are not yet verified by EPA or the California Air Resources Board (CARB). Emission reductions calculated by this model based on user-entered percent reductions not based on EPA or CARB's verified technology list should not be used for any official purposes or to meet any reporting requirements.

Technology Actions

Click "Save New" keep this entry in case you want to go back and work on others. You can call it up later in this session and use it or edit it. Please note you cannot save calculations once you log off this Web site. Click "Save New and Add Another" if you want to add another technology to this vehicle group.



<http://www.epa.gov/midwestcleandiesel/>

National Clean Diesel Program

\$49.2 Million for 2008

National

\$34.4 Million (70%)



**National Clean Diesel
Funding Assistance Program \$27.6 M**

Clean Diesel Emerging Technologies Program ~\$3.4 M

National Clean Diesel Finance Program ~\$3.4 M

State

\$14.8 Million (30%)



State Clean Diesel Grant Program \$14.8 M

State Base

Matching Bonus

National Clean Diesel Campaign

\$49.2 Million for 2008

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\$27.6 M

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Clean Diesel Emerging Technologies Program
~\$3.4 M

Competitive grant
process managed
through EPA
regions

MCDI RFP

- Approximately \$5M Available
- Made Available March 14, 2008
- Application Due by June 12, 2008
- 10-20 Awards to be Made
- \$100,000-\$750,000
- <http://www.epa.gov/midwestcleandiesel/>

National Clean Diesel Funding Assistance Program: Eligible Entities

- Regional, state, local, tribal or port agency with jurisdiction over transportation or air quality; and
- Nonprofit organization or institution which
 - Represents or provides pollution reduction or educational services to persons or organizations that operate diesel fleets; or
 - Has, as its principle purpose, the promotion of transportation or air quality

National Clean Diesel Funding Assistance Program: Public Fleets

At least 50% of funding is dedicated for the benefit of public fleets

- Will include private fleets contracted or leased for public purpose, such as private school buses or refuse haulers
- Only eligible entities can apply directly for funds (i.e., school district applies on behalf of private school bus contractor)



National Clean Diesel Funding Assistance Program: Use of Funds

- Cannot fund the cost of emissions reductions mandated under Federal, State or Local law
- Grants are not for emissions testing

National Clean Diesel Funding Assistance Program: Use of Funds

- Technologies and engines must be verified and/or certified by USEPA or CARB
www.epa.gov/cleandiesel (select *Verified Technology List*)
- Incremental cost of engine replacement (sent to be remanufactured or scrapped), engine repower, engine rebuild

National Clean Diesel Funding Assistance Program: Use of Funds

- Idle Reduction Technologies (EPA verified)
 - Electrified Parking Spaces (truck stop electrification)
 - Auxiliary Power Units and Generator Sets
 - Fuel Operated Heaters
 - Battery Heating and Air Conditioning Systems
 - Thermal Storage Systems

<http://www.epa.gov/cleandiesel>
select *Idle Reduction*

National Clean Diesel Funding Assistance Program: Use of funds

- Cleaner fuels
 - Covers incremental costs of cleaner fuel versus conventional diesel fuel
- Innovative Financing Projects
 - Regional or state specific programs (for vehicles or engines operating exclusively within a State, Territory or Tribal Land)

National Clean Diesel Funding Assistance Program: Eligible Fleets and Equipment

- Buses
- Medium or heavy duty trucks
- Marine engines
- Locomotives



- Nonroad engine, stationary engine or vehicle used for:
 - Construction
 - Handling of cargo (including at a port or airport)
 - Agriculture
 - Mining
 - Energy production

National Clean Diesel Funding Assistance Program: Priority Projects

Project proposals that align with these priorities will receive higher scores in the evaluation process:

- Maximize public health benefits
- Are the most cost-effective
- Are in areas with high population, air quality issues, and air toxic concerns
- Are in areas that receive a disproportionate quantity of air pollution (i.e. truck stops, ports)
- Maximize the useful life of the engine
- Conserve diesel fuel and utilize ULSD (early introduction of ULSD for nonroad projects)

Funding Summary

- Idling and Retrofit Technologies and Engine Upgrades – EPA Region 5 will fund 100% of the cost of idling or retrofit technologies.
- Cleaner Fuel Use – EPA Region 5 will fund the cost differential between the cleaner fuel and conventional diesel fuel.
- Engine Repower – EPA Region 5 will fund up to 50% of the cost of an engine repower.
- Vehicle/Equipment Replacement – EPA Region 5 will fund up to 25% of the cost of a new vehicle or piece of equipment
- School Bus Replacement:
For buses that meet EPA's 2010 emissions standards, EPA Region 5 will fund 50% of the cost of a replacement school bus.
For buses that meet EPA's 2007 emissions standards, EPA Region 5 will fund 25% of the cost of a replacement school bus

Funding Summary

- If an innovative finance project involves installation of idle reduction technology or vehicles or equipment retrofitted with a verified emission control technology, then this program will finance up to 100% of the cost of idling reduction technology, or up to 100% of the cost of the vehicle or equipment retrofitted with verified emission control technology.
- If an innovative finance project involves vehicle/equipment replacement, then the program will finance up to 100% of the cost of a newer vehicle or piece of equipment if the existing vehicle or equipment is scrapped or the replaced engine is returned to the original engine manufacturer for remanufacturing to a cleaner standard.

Evaluation Criteria

- Scope of Work/Project Summary (19 pts)
- Programmatic Priorities (20 pts)
- Past Performance--Programmatic Capability and Reporting on Environmental Results (6 pts)
- Environmental Results – Outcomes and Outputs (10 pts)
- Budget/Resources (10 pts)

Evaluation Criteria

- Clear Description of the Target Fleet (10 pts)
- Leveraging Resources/Partnering (10 pts)
- Staff Expertise/Qualifications (5 pts)
- Regional Significance (10 pts)

Next Steps

- Review fleet
- Develop plan and review options
- Identify or develop funding sources
- Questions:
 - <http://www.epa.gov/midwestcleandiesel/>
 - <http://www.epa.gov/cleandiesel/>

The Clean Diesel Initiative

Funding Workshop

March 25, 2008

Getting Started

- How many of you came with an idea for an EPA grant?
- How many of you have a grant writer in your organization?

Partnering for Success

- 50% of something is better than 100% of nothing.
- Look for and cultivate partners that will make your proposal stronger.
- Besides, team solutions to a problem are more effective than solutions developed by a single individual.

The Six P's to Planning (Prior program planning prevents poor performance)

- A good proposal doesn't just happen- you need to be strategic in what you are going to do, how you are going to do it and how you will determine how effective the program is.



Planning components

- Start with an idea or problem
- Develop a clear NEEDS statement
- Write clear GOALS
- Develop OBJECTIVES
- Think about the OUTCOMES, which will become part of the EVALUATION process.

More on Planning

- Follow the GUIDELINES to the letter.
- Use RESEARCH to back up your ideas.
- ASK:
 1. Who will this project benefit?
 2. Who will implement the project?
 3. Where will the funds be directed?
 4. What is the evaluation plan?

Now for the Hard Part....

- Now, that you have the money, what do you need to do?



The Hard Part...

- Management plan
- Quality of personnel
- Budget summary and process
- Marketing/
- advancement plan
- Evaluation plan

Top Ten Tips on Making it Work

- 1. Organize, organize, organize.

Tip # 2

- Develop a calendar /timeline of activities
- and stick to the plan.

Tip # 3

- Keep a three ring binder on every correspondence, every report, every email, every contact, and be able to use that to document your activities.

Tip # 4

- Meet with the partners throughout the project to make sure everything is on track.



Tip # 5

- When accepting bids for equipment, materials or supplies,
- be specific in your exact requirements.

Tip # 6

- Keep the EPA/grantor “in the loop.” This could mean involvement in grant activities; submitting timely and accurate reports, who contacting them throughout the process.

Tip # 7

- Care for and feed all the people who will help to make the program a success.

Tip # 8



- Know that “fires” are going to come up and be prepared to put them out. Remember, you may need to start some fires along the way.

Tip #9

- Enjoy the grant process- it can be as much fun and exciting as you want to make it. And build something that you will take pride.

Tip # 10

- And never give up- until the last form is submitted- and approved.

Diesel Exhaust Emissions

- ◆ Health impacts

 - Respiratory*

 - Cardiac*


 - Cancer*

- ◆ Air Quality impacts

Diesel Exhaust – Complex Mixture

- ◆ Two main categories of diesel exhaust:
 - Gases – non-toxic and toxic components
 - Particles – fine and ultrafine highly and toxic chemicals absorbed onto them


Health Hazards from:

- ◆ Acute (short term) exposures
 - ◆ Chronic (long term) exposures resulting in non-cancer effects
 - ◆ Lung cancer
- 
- A stylized silhouette of a mountain range in a darker shade of teal, located in the bottom right corner of the slide.

Exhaust irritates airways

- ◆ The bulk of the studies show impacts on the respiratory system resulting in short term effects of:
 - Eye, throat, lung irritation
 - Increased cough, phlegm production
 - Triggering asthma attacks

Chronic (long term) effects

- ◆ Longer exposures can lead to inflammation of and microscopic changes to lung tissues, leading to reduced lung function
 - ◆ Co-exposure to diesel and ragweed pollen increases allergic response
- 
- A stylized, dark teal silhouette of a mountain range is positioned in the bottom right corner of the slide, extending from the right edge towards the center.

Cancer Risk – Diesel Exhaust

- A number of Federal and State organizations have determined that diesel exhaust is likely a human carcinogen.
- Detroit Air Toxics Initiative (DATI) report: listed diesel with a *roughly* estimated cancer risk of 300-600 in a million in the Detroit area
 - (caveats – monitoring uncertainty and risk estimation uncertainty)

Why are kids at risk?

- ◆ Children are more susceptible to air pollution than healthy adults because their respiratory systems are still developing, they have a faster breathing rates, narrower airways, and less mature immune systems

Children and asthma

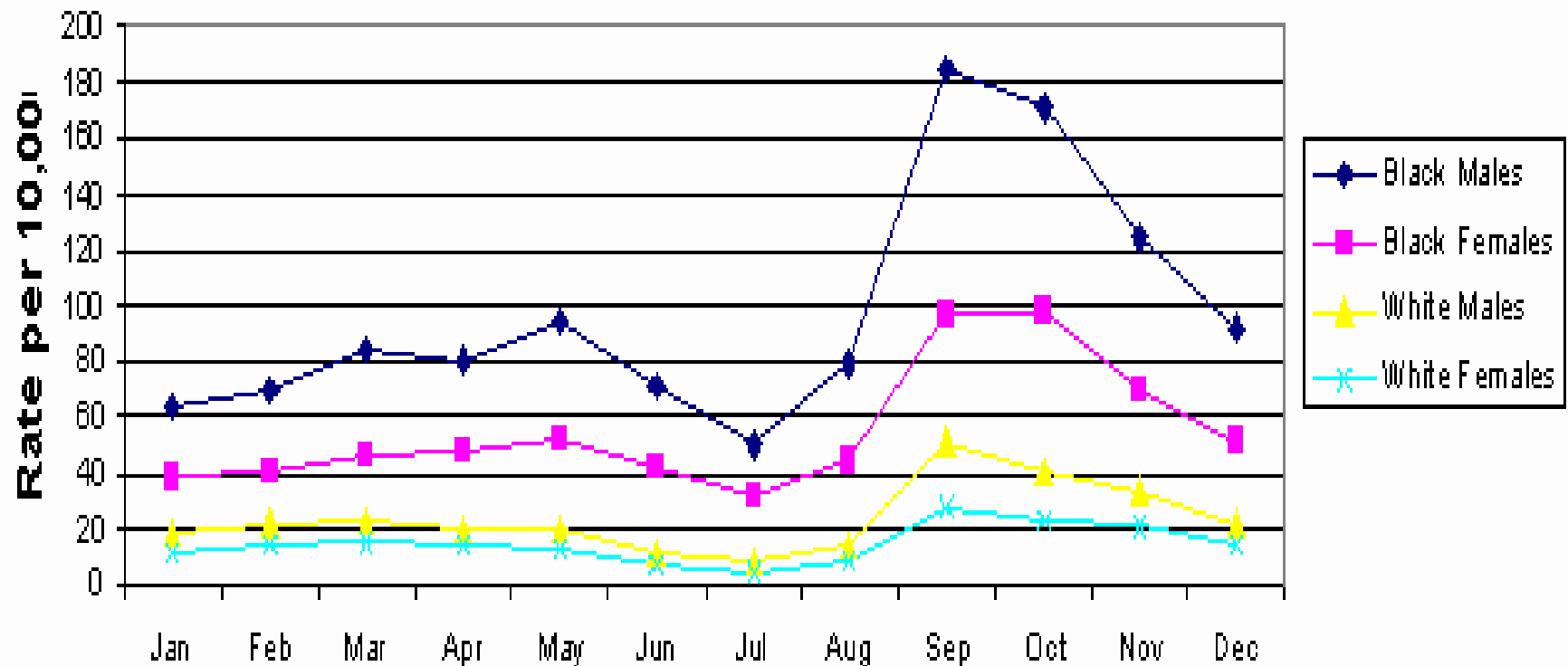
- ◆ Asthma has a large impact on children in the United States each year. In school children, asthma is the *number one cause of absence* due to a chronic disease.
- ◆ Asthma in preschoolers has risen 160% since 1980; in children 5-14 it increased 75%

Special Risk for Children from School Buses

- ◆ On average, children spend more than an hour on a school bus each school day as well as time waiting for and getting on and off the bus. This increased potential for exposure and childrens' higher rates of respiration may lead to higher exposure to diesel exhaust in children. They are less likely to be able to expel or detoxify pollutants since their immune systems are immature.
- ◆ PM2.5 concentrations measured on buses have been found to be 5-10 times higher than average levels measured at fixed site monitoring stations. Smaller particles can penetrate children's narrower airways and are more likely to be retained there.
- ◆ When children's airways are inflamed or constricted by asthma, allergies or infections, diesel exhaust may make breathing more difficult..

Asthma hospitalization rates go up in the fall

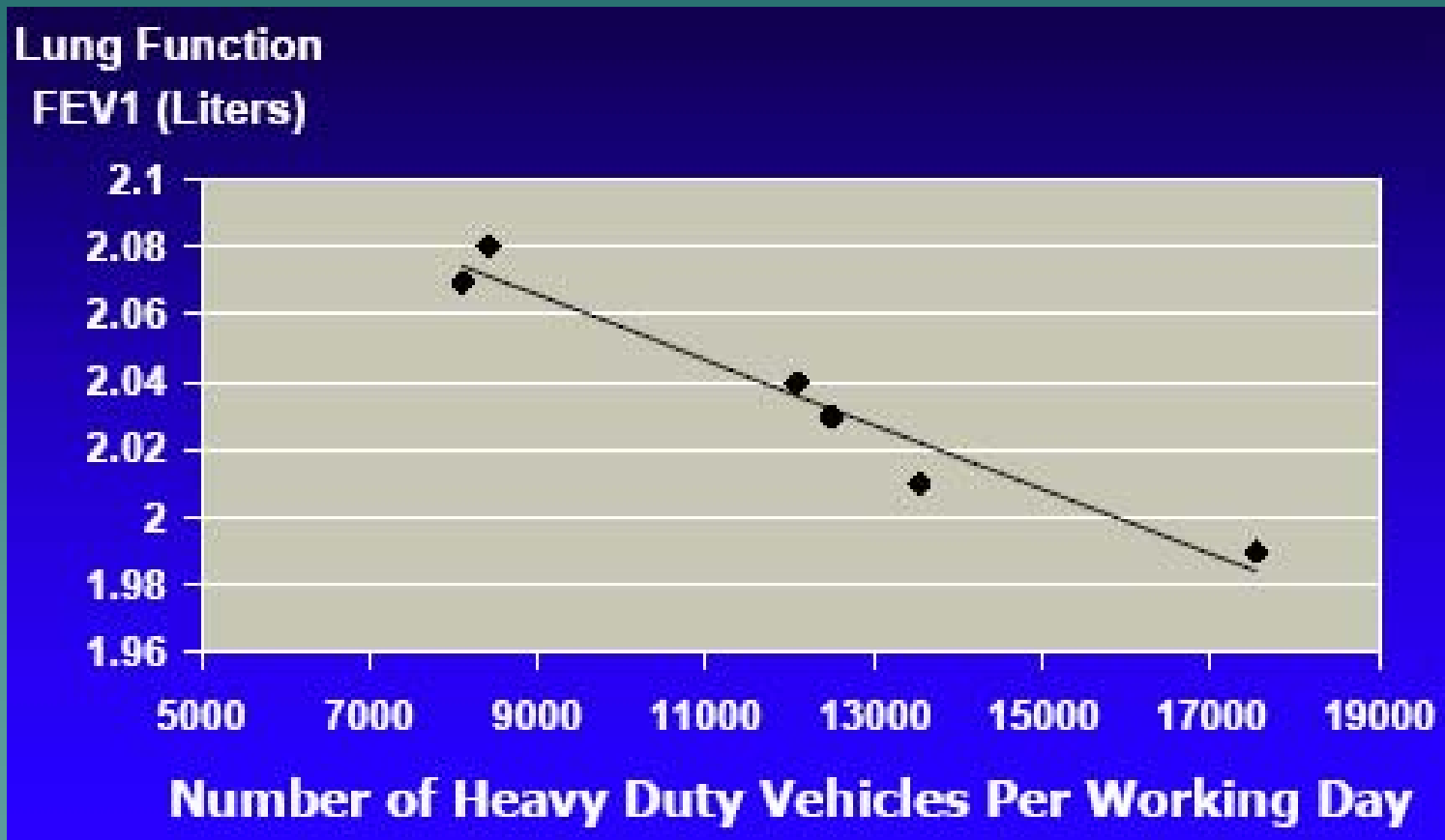
Childhood Asthma Hospitalization Rates By Month, Race, and Sex
Ages 1-14 Years, Michigan, 1990-1998



Asthma in Wayne County

- ❖ 52,013 children currently have asthma. 158,715 adults currently have asthma
- ❖ There are about 6216 hospitalizations each year in Wayne County. The rate of asthma hospitalizations is **significantly higher than the rate for the State of Michigan**
- ❖ There are about 49 deaths due to asthma in Wayne County each year.
- ❖ For Wayne County, the total cost of asthma is \$88,017,000 per year

Living Within 300 Meters of Local Roadways Affects FEV₁




Brunekreef et al., 1997

Cardiac impacts from Diesel

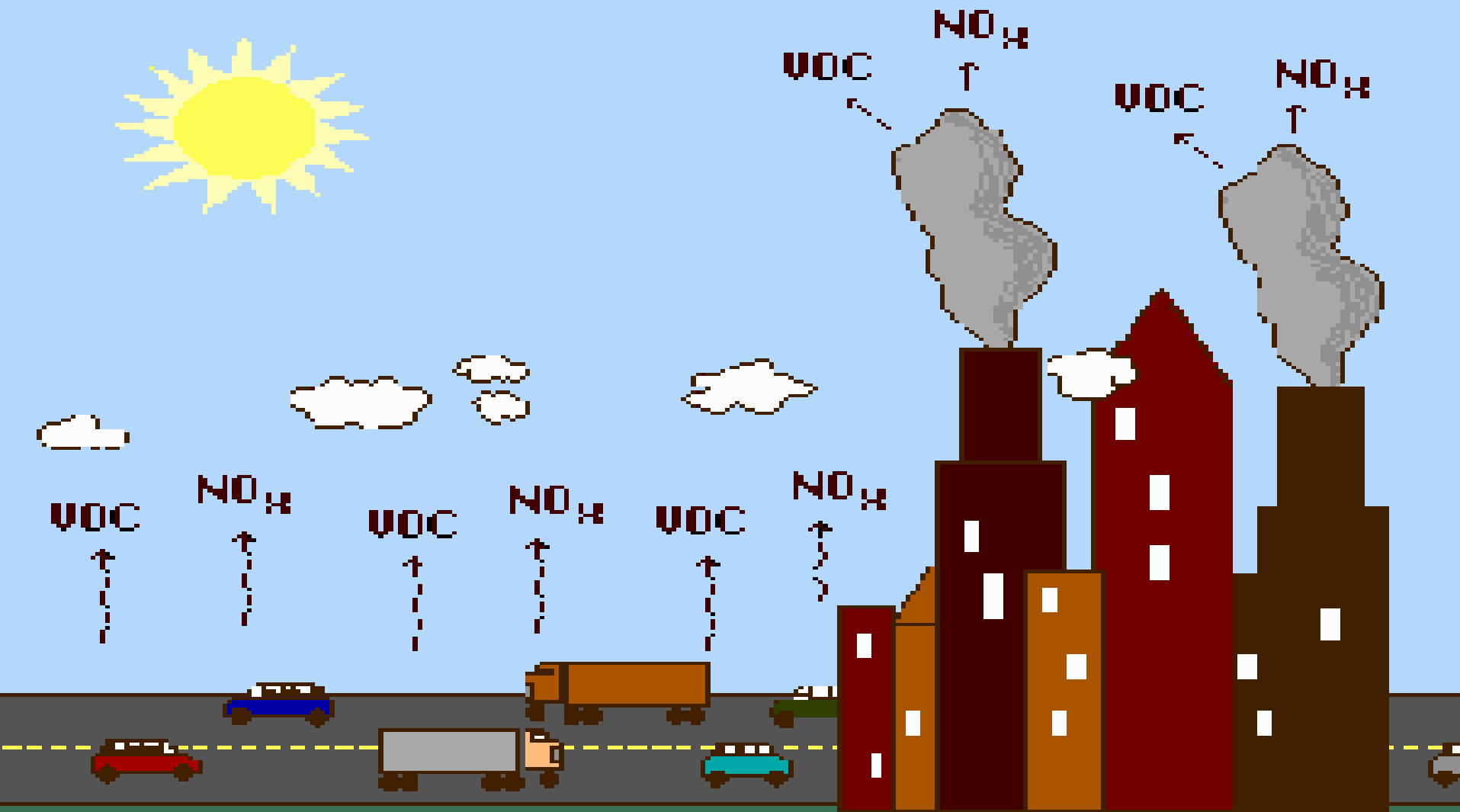
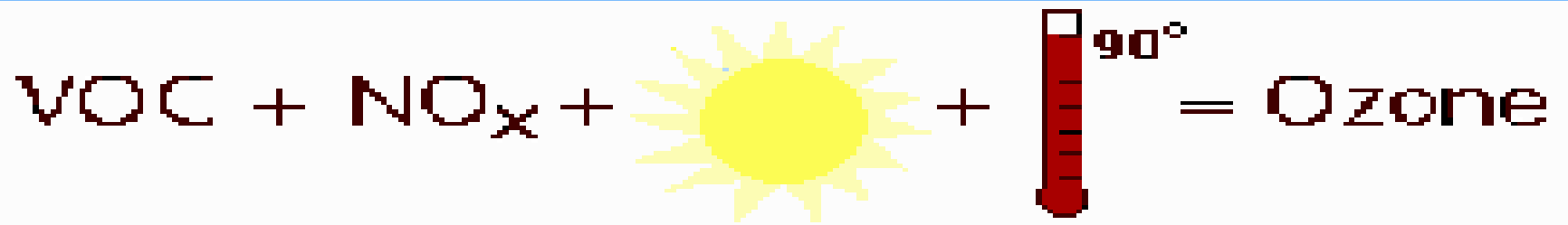
- Associated with cardiac abnormalities
 - ◆ Both gas and particulate components
- Linked with blood component changes
- May promote atherosclerosis (hardening of the arteries) development by generating oxidative stress and inactivating the protective qualities of high density lipoprotein (HDL) cholesterol (the “good” cholesterol)

Diesel emissions contribute to:

- ◆ Ozone (NO_x) – contribution to smog formation
 - ◆ Particulate Matter (especially PM_{2.5})
 - ◆ Air Toxics
- 
- A stylized, layered mountain range graphic in shades of teal and blue, located in the bottom right corner of the slide.

Risk from Diesel with other chemicals

- ◆ Exposure to tobacco smoke makes heart and lungs more susceptible to diesel health effects
- ◆ Exposure to other workplace or hobby chemicals may also have an impact on the toxicity of diesel exhaust



Ozone – Atlanta traffic /Asthma

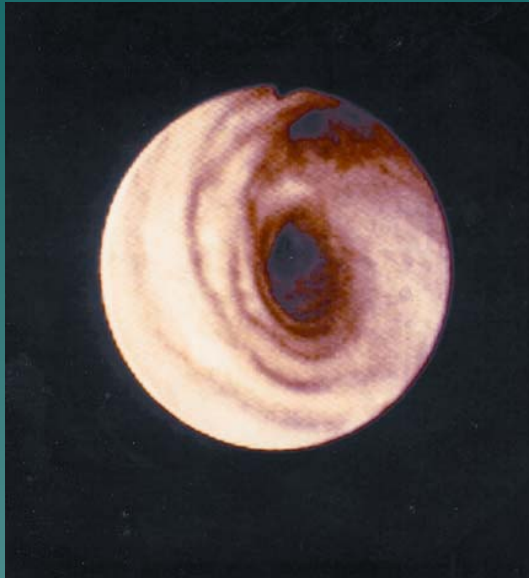
- Atlanta, GA, 1996 summer Olympic games: changes in transportation and commuting behaviors reflected in lower O₃ levels and asthma admission rates¹

1. Friedman *et al.*, 2001

Impact on Air Quality

- ◆ According to EPA, Diesel Exhaust estimated to make up 6% of the total ambient PM_{2.5} nationwide, with higher amounts in urban areas (10-36% in some Southwestern states)
- ◆ Varies with composition and amount with:
 - Type of engine
 - Fuel composition
 - Emission controls on the engine
 - Temperature

Particle Pollution Affects the Lungs




You are exposed to particle pollution simply by breathing polluted air.

Exposure increases when you exercise, because you breathe more vigorously and deeply than usual.

Respiratory effects include:

- **airway irritation**
- **cough**
- **phlegm**
- **decreased lung function**
- **airway inflammation**
- **asthma attacks**
- **bronchitis**
- **chronic bronchitis**

Detroit Air Quality Studies

- ◆ Hospitalizations for heart disease and respiratory illnesses were found to increase in Detroit with increasing fine particulate matter
 - ◆ Increasing fine PM was associated with increased daily deaths in Detroit, with no evidence of a threshold
 - ◆ Adverse impacts on lung function in children, especially African-American, low income children, were found with increasing levels of air pollutants (including PM10)
- 
- A stylized, dark teal silhouette of a mountain range is positioned in the bottom right corner of the slide, partially overlapping the bottom edge of the text area.

National Clean Diesel Campaign

\$49.2 Million for 2008

National Component

\$34.4 Million
(70%)



National Clean Diesel Funding Assistance Program
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State Component

\$14.8 Million
(30%)



State Clean Diesel Grant Program \$14.8 M

State Base

Matching Bonus

State Clean Diesel Grant Program: Funding Allocation

- ~ \$10M for states that apply
 - If all 50 states participate, 2% for each
 - If fewer than 50 states participate, 2% plus population formula
- ~ \$5M reserved as incentive for state match
 - Match not required
 - If State matches allocation dollar for dollar, State receives an additional 50% of allocation above
 - Any funding not utilized reverts to national program
- Award amounts to states could range from \$200,000 to over \$1,000,000

State Clean Diesel Grant Program: Use of Funds

- States shall use funds to develop and implement grant and low-cost revolving loan programs as appropriate to meet State needs and goals relating to the reduction of diesel emissions
 - 15% cap on administrative costs
- Grants or loans provided by States may be used for projects relating to certified engine configurations, verified technology (including idle reduction) or emerging technologies
 - States can subgrant funds

State Clean Diesel Grant Program: Matching Funds

- State or private sources
- Monetary or in-kind contributions
- Federal funds cannot be used as match

State Clean Diesel Grant Program

FY08 Estimated Timeline

| Activity | Date |
|---|------------|
| Notice of funding availability (FR) | March 10 |
| State electronic <i>Letter of Intent</i> due to EPA | April 24 |
| EPA response with potential funding level to states | May 9 |
| State application packages due to regions based on allocation level | June 23 |
| Regional Grants Offices award grants | August |
| Project period begins | Sept – Oct |

The State of Michigan's Particulate Attainment Strategy

Michigan's Particulate Strategy

The Issue at Hand

- ◆ The Michigan Particulate Matter State Implementation Plan (SIP)
 - The SIP: a contract between the state and the U.S. EPA to implement the CAAA.
 - Recent Closure of Public Comment (3/5/08)

Michigan's Particulate Strategy

Purpose of SIP

- ◆ Bring all non-attainment areas for $PM_{2.5}$ into attainment by 2010.
 - ◆ The U.S. EPA says there are 7 counties in the Southeast Michigan area that are in non-attainment: Wayne, Oakland, Macomb, Washtenaw, St. Clair, Monroe and Livingston.
 - ◆ Michigan maintains that there are only two counties are in non-attainment: Wayne and Monroe.

Michigan's Particulate Strategy

Purpose of SIP *(continued)*

- ◆ Incorporate certain measures to prevent sources in a state from significantly contributing to air quality problems in another state.

Michigan's Particulate Strategy

Purpose of SIP *(continued)*

- ◆ Transportation Conformity and the SIP
 - The EPA Conformity Rule requires that transportation plans, programs, and projects not produce new air quality violations or delay timely attainment of the federal particulate standard.

Michigan's Particulate Strategy

Wayne County's Particulate Monitors

- ◆ In the industrialized section of South and West Detroit there are two monitors exceeding the annual standard:
 - ◆ The Dearborn Monitor
 - ◆ Detroit's Southwestern High School Monitor

Michigan's Particulate Strategy

The most effective attainment strategy for these areas is to focus on local (i.e. state-initiated) emission reductions from sources in this area.

Michigan's Particulate Strategy

What's generating higher particulate levels at or near these monitors?

Assumptions- Within 3 miles of the monitors:

- Two steel mills
- **An oil refinery (Marathon Oil)**
- 3 power-generating plants
- An auto manufacturer
- A wastewater treatment plant
- Lime, cement, slag and asphalt plants
- Several other industrialized facilities
- A CSX rail yard

Michigan's Particulate Strategy

Other assumptions:

- ◆ Local and regional monitoring data indicate that the Southeast Michigan's non-attainment problem is caused by a combination of regional transport and local emissions from sources in the vicinity of the monitors showing violations of the standard.

Michigan's Particulate Strategy

What's Currently Being Done?

- ◆ Over the next 2 years, 28 of the switch engines near the Dearborn monitor will be retrofitted with anti-idling equipment.
 - ◆ This is being funded through a \$1.5 million federal Supplemental Environmental Project (SEP).

Michigan's Particulate Strategy

What's Currently Being Done? *(continued)*

- ◆ Four switch engine locomotives at the CSX rail yard will be rebuilt with smaller engines over the next two years.
 - This project is being funded through the federal Congestion Mitigation Air Quality (CMAQ) program.

Michigan's Particulate Strategy

Other Measures to Reach Attainment include:

- ◆ National controls
- ◆ Local (state) controls
- ◆ Voluntary measures

Michigan's Particulate Strategy

Voluntary Measures include activities of the Michigan Clean Diesel Initiative and its members

Example: SEMCOG and SWDEV, along with U of M will develop a blueprint for greening of this area during the 2007-2008 academic year.

- ◆ Looking at plant species with the greatest potential for reducing dust in the area.

Michigan's Particulate Strategy

Voluntary Measures include activities of the Michigan Clean Diesel Initiative and its members

Example: **MARATHON OIL**

- ◆ Recently applied for a Permit to Install with the state. The permit is currently under negotiation.

Michigan's Particulate Strategy

MARATHON OIL *(continued)*

Planning Several other air quality actions including:

- Voluntary enhanced street sweeping on public roads in the vicinity of their plant.
- Voluntary installation of air monitoring stations in and around the facility
- Voluntary installation of particulate controls on the truck fleet that will transport petroleum coke.

Michigan's Particulate Strategy

MARATHON OIL *(continued)*

- The voluntary retrofit of 87 school buses in the Detroit Public School fleet.
- Marathon is also willing to donate additional monies to retrofit more school buses or other municipal fleets in metro Detroit (i.e. the downriver area) that would have an impact on the monitoring sites.

Michigan's Particulate Strategy

- ◆ The State of Michigan intends to use Marathon Oil's voluntary efforts (i.e. their monetary level of effort) to leverage two grant applications with the U.S. EPA:
 - One for the state non-competitive grant which would incorporate their efforts to retrofit Detroit's school buses.

Michigan's Particulate Strategy

The other for the U.S. EPA national competitive grant. We hope to work with the bus and municipal fleets in Detroit and the following communities:

- Allen Park
- Trenton
- Melvindale
- Wyandotte
- Brownstown Township
- Taylor
- Ecorse
- River Rouge

- Dearborn
- Dearborn Heights
- Inkster
- Garden City
- Woodhaven
- Southgate
- Lincoln Park
- Riverview

Michigan's Particulate Strategy

- ◆ The State wants to concentrate its efforts during this first 2-year grant cycle on the metro Detroit area in hopes of helping Wayne county reach its particulate attainment goals by 2010.
- ◆ We encourage others in the MiCDI to collaborate and enhance the state's efforts by developing strong grant projects that realize additional reductions in overall state particulate generation by 2010.

Michigan's Particulate Strategy

Questions?